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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/091,398 | 03/07/2002 | Seong-Hwoon Kim | 017750-698 | 8639 |

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Patrick C. Keane
BURNS, DOANE, SWECKER & MATHIS, L.L.P.
P.O. Box 1404
Alexandria, VA 22313-1404

EXAMINER

LEE, BENNY T

| ART UNIT | PAPER NUMBER |
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2817

DATE MAILED: 07/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.



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FILED DATE

EXAMINER

ART UNIT

CLASS

ONE examination fee is chargeable for each application.
TO AVOID INADEQUATE

- ☐ This application has been examined ☒ Responsive to communication filed on 12 Dec 2003 ☒ This action is made final.
- A shortened statutory period for response to this action is set to expire Three (3) month(s), days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- | | |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited by Examiner, PTO-892. | 2. <input type="checkbox"/> Notice re Patent Drawing, PTO-948. |
| 3. <input type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449. | 4. <input type="checkbox"/> Notice of Informal Patent Application, Form PTO-152 |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474. | 6. <input type="checkbox"/> |

Part II SUMMARY OF ACTION

1. ☒ Claims 1-34 are pending in the application.
Of the above, claims 11 are withdrawn from consideration.
2. ☐ Claims 11 have been cancelled.
3. ☒ Claim 11 is allowed.
4. ☒ Claims 1-7, 21-25; 8, 9; 10, 26-30; 12-20, 31-34 are rejected.
5. ☐ Claims 1-7, 21-25; 8, 9; 10, 26-30; 12-20, 31-34 are objected to.
6. ☐ Claims 1-7, 21-25; 8, 9; 10, 26-30; 12-20, 31-34 are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on 12 Dec 2003. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice re Patent Drawing, PTO-948).
10. ☒ The proposed additional or substitute sheet(s) of drawings, filed on 12 Dec 2003, has (have) been ☒ approved by the examiner; ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed 12 Dec 2003, has been ☐ approved; ☐ disapproved (see explanation).
12. ☐ Acknowledgement is made of the claim for priority under U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. 12 Dec 2003; filed on 12 Dec 2003.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

EXAMINER'S ACTION

SN 91938
U.S. GPO: 1990-259-282

Best Available Copy

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Claims 1-7, 21-25; 8, 9; 10, 26-30; 12-20, 31-34 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claims 1, 8, 10, 12, note that the amended limitation of “changing a physical dimension” of an “electrically conducting surface (or area)” appears to be a deviation from the original claim limitation of “changing a physical dimension” of the “waveguide path” and thus is considered “new matter”.

Regarding new claims 22, 27, 32, the limitation of “changing a dimension of an electrically conducting wall within the waveguide” does not appear to be supported by the original disclosure and thus is considered “new matter”.

Should applicants’ disagree as to whether the above issues are “new matter”, then an appropriate explanation should be provided, including pointing out where explicit support can be found in the original disclosure for these limitations, in question.

The following claims have been found objectionable for reasons set forth below:

In claim 2, line 1, note that --at least one-- should follow “the” to provide consistency in terminology; line 3, note that --said at least one-- should precede “electromechanical” for consistency in terminology.

In claim 3, lines 2, 3, note that --one of said at least one-- should precede each occurrence of “electromechanical” for consistency in description.

In claims 5, 6, note that “devices” should correctly be --means-- for consistency of terminology.

In claim 13, lines 3, 4; claim 18, lines 4, 6; claim 20, lines 2, 3: note that --at least one-- should precede “micro-mechanical” for consistency of terminology.

In claim 13, lines 3, 4, note that --one of-- should precede “a first” and “a second”, respectively.

In claims 21, 25, 26, 30, 31, note that --respective-- should precede “piezoelectric” (i.e. cls 21, 26, 31) and “micro-electromechanical”, respectively for clarity of description.

In claims 24, 34, note that “an” should be rephrased as --a respective-- for clarity of description.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1; 8, 9 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by the Soviet Union ('346) reference.

The Soviet ('346) reference discloses an in-line waveguide phase shifter comprising: a rectangular waveguide (1) with a waveguide path therein; at least one electrically conductive (i.e. metallic) plate (5), inherently having a conductive surface, disposed in the waveguide; an electromechanical means (i.e. motor 4) for changing the orientation of the metallic plates (5) and thus the physical dimensions of the conductive surface relative to impinging electromagnetic waves, thereby effecting a phase shift of those waves when output from the waveguide.

Claims 1, 21, 25; 8, 9; 12, 31 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by the Soviet Union ('331) reference.

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The Soviet ('331) reference discloses an in-line waveguide comprising: a waveguide (1) having a waveguide path therein; a metal strip (4) disposed within the waveguide path and inherently having an electrically conductive surface; a micromechanical device (i.e. piezoelectric element 2) affixed to metal strip (2) and which is responsive to an actuation signal voltage applied to electrode (13) to thereby move strip (4) and thus change the dimensions of strip (4) within the waveguide path; whereby the change in strip (4) effects a phase shift of an incoming signal.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 2, 22, 25; 8, 9; 10, 27, 30; 12, 32, 34 rejected under 35 U.S.C. 103(a) as being unpatentable in view of the United Kingdom (i.e. UK) reference

The Morooka reference discloses an in-line waveguide phase shifter comprising: a waveguide (13) having a waveguide path; an iris or wall (14) disposed within the waveguide path; a micro-electromechanical (i.e. electrostriction) element fixed to iris (14) and responsive to an actuation signal applied to electrodes (17, 18), which causes the electrostriction element to

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move, thereby changing the physical dimensions of the iris wall protruding into the waveguide path; whereby the change in the iris dimension effects a phase shift in electromagnetic waves propagating through the waveguide. Note from Fig. 3 that a plurality of irises can be configured along the waveguide path to provide improved phase shift. The Morooka reference differs from the claimed invention in that the nature of the wall of the iris is unspecified.

The UK reference discloses in Fig. 1 thereof, an exemplary structure of an iris in a waveguide structure where the iris is defined by conductive plates (22, 23) protruding into the waveguide path (e.g. see lines 56-58). Moreover, as evident from the description at lines 116-121, the conductive iris structure contributes to a reduction in electromagnetic wave velocity and thus effects a corresponding phase shift.

Accordingly, in view of the exemplary teaching in the UK reference, it would have been obvious to have modified the iris in the waveguide phase shifter of Morooka to have included conductive walls or plates. Such a modification would have been considered an obvious substitution of art recognized equivalent structures from the same field of endeavor (i.e. waveguide phase shifters), especially since the generic nature of the iris structure (i.e. the metal plates taught by the UK reference) would have usable therewith. Although Morooka discloses a single micro-mechanically adjustable iris, it would have been obvious that a plurality of such irises spaced along the waveguide path would have been likewise made adjustable. Such a modification would have been considered obvious in view of the recognition in Fig. 3 of Morooka, that a plurality of irises can be arranged in a phase shift waveguide, and in view of the recognition that by making each of these irises adjustable as taught by Morooka would have been considered an obvious optimization of the phase shift function.

Claim 7 is rejected under 35 USC 103(a) as being unpatentable over the preceding rejection as applied to claim 1 above and further in view of Malone et al (of record).

Note that the preceding combination differs from the claimed invention in that the phase shifter thereof has not been disclosed as being used in a radar transceiver.

As previously disclosed, Malone et al provides an exemplary teaching of a waveguide phase shifter being used in a radar transceiver.

Accordingly, in view of the exemplary teaching in Malone et al, it would have been obvious that alternative yet equivalent waveguide phase shifters (e.g. such as in the above combination) would have been usable therewith without altering the function of such a phase shifter within the radar transceiver, thereby suggesting the obviousness of such a modification.

Applicant's arguments with respect to claims 1, 7; 8, 9; 10, 12 are moot in view of the new grounds of rejection.

Claims 3-7, 23, 24; 26, 28, 29; 13-20, 33 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Claim 11 is allowable over the prior art of record.

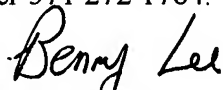
Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication should be directed to Benny Lee at telephone number 571 272 1764.


BENNY T. LEE
PRIMARY EXAMINER
ART UNIT 2817

B. Lee